

CLAIMS

What is claimed is:

- 1 1. A method, comprising:
2 activating a management mode of operation of a processor on a processing blade,
3 the processing blade included within a blade server;
4 interacting with a management module of the blade server during the management
5 mode of operation to manage operation of the processing blade; and
6 deactivating the management mode of operation of the processor.
- 1 2. The method of claim 1 wherein the management mode of operation of the
2 processor is transparent to a pre-boot runtime of the processor and to an operating system
3 runtime of the processor.
- 1 3. The method of claim 2 wherein the management mode of operation of the
2 processor is further transparent to an operating system load sequence.
- 1 4. The method of claim 2 wherein activating the management mode of operation
2 of the processor comprises activating the management mode of operation in response to a
3 software entity executed by the processing blade.

1 5. The method of claim 2 wherein:

2 activating the management mode of operation comprises saving state information
3 of the processor and saving an execution location of the processor prior to entering the
4 management mode of operation, and

5 deactivating the management mode of operation comprises exiting the
6 management mode of operation, loading the saved state information into the processor,
7 and returning the processor to the saved execution location.

1 6. The method of claim 2 wherein the management mode of operation comprises
2 one of a system management mode (“SMM”) and a platform management mode
3 (“PMM”).

1 7. The method of claim 1, further comprising:

2 activating a plurality of management modes of operation of a corresponding
3 plurality of processing blades of the blade server in response to a corresponding plurality
4 of software entities executing on each of the processing blades;

5 interacting with the management module of the blade server during each of the
6 plurality of management modes of operation to manage operation of each of the plurality
7 of processing blades; and

8 deactivating the plurality of management modes of operation.

1

1 8. The method of claim 7 wherein:
2 activating the plurality of management modes of operation comprises activating
3 each one of the plurality of management modes of operation of each of the plurality of
4 processing blades at an independent time, and
5 deactivating the plurality of management modes of operation comprises
6 deactivating each one of the plurality of management modes of each of the plurality of
7 processing blades at an independent time.

1 9. The method of claim 1 wherein interacting with the management module
2 includes at least one of coordinating with the management module for access to shared
3 resources of the blade server, reporting system errors to the management module, and
4 coordinating fault resilient booting with the management module.

1 10. The method claim 9 wherein the shared resources include at least one of a
2 floppy drive, a compact disc read only memory ("CD-ROM") drive, a DVD-ROM drive,
3 a serial port, a parallel port, a universal serial bus port, a monitor, a keyboard, and a
4 mouse.

1 11. A machine-accessible medium that provides instructions that, if executed by a
2 machine, will cause the machine to perform operations comprising:
3 activating a management mode of operation of a processing blade of a blade
4 server;

5 interacting with a chassis management module (“CMM”) of the blade server
6 during the management mode of operation to manage operation of the processing blade;
7 and
8 deactivating the management mode of operation.

1 12. The machine-accessible medium of claim 11, further providing instructions
2 that, if executed by the machine, will cause the machine to perform the operations
3 wherein the management mode of operation of the processing blade is transparent to a
4 pre-boot runtime of the processing blade and to an operating system runtime of the
5 processing blade.

1 13. The machine-accessible medium of claim 12, further providing instructions
2 that, if executed by the machine, will cause the machine to perform the operations
3 wherein the management mode of operation of the processing blade is further transparent
4 to an operating system load sequence.

1 14. The machine-accessible medium of claim 12, further providing instructions
2 that, if executed by the machine, will cause the machine to perform the operations
3 wherein:
4 activating the management mode of operation of the processing blade comprises
5 activating the management mode of operation in response to a software entity executing
6 on the processing blade.

1 15. The machine-accessible medium of claim 12, further providing instructions
2 that, if executed by the machine, will cause the machine to perform the operations
3 wherein:

4 activating the management mode of operation comprises saving state information
5 of a processor of the processing blade and saving an execution location of the processor
6 prior to entering the management mode of operation, and

7 deactivating the management mode of operation comprises exiting the
8 management mode of operation, loading the saved state information into the processor,
9 and returning the processor to the saved execution location.

1 16. The machine-accessible medium of claim 12, further providing instructions
2 that, if executed by the machine, will cause the machine to perform the operations
3 wherein the management mode of operation comprises one of a system management
4 mode ("SMM") and a platform management mode ("PMM").

1 17. The machine-accessible medium of claim 11, further providing instructions
2 that, if executed by the machine, will cause the machine to perform operations
3 comprising:
4 activating a plurality of management modes of operation of a corresponding
5 plurality of processing blades of the blade server in response to a corresponding plurality
6 of software entities executing on each of the processing blades;

7 interacting with the CMM of the blade server during each of the plurality of
8 management modes of operation to manage operation of each of the plurality of
9 processing blades; and
10 deactivating the plurality of management modes of operation.

1 18. The machine-accessible medium of claim 11, further providing instructions
2 that, if executed by the machine, will cause the machine to perform the operations
3 wherein:
4 interacting with the CMM includes at least one of coordinating with the CMM for
5 access to shared resources of the blade server, reporting system errors to the CMM, and
6 coordinating fault resilient booting with the CMM.

1 19. A processing blade, comprising:
2 a processor to execute instructions;
3 a communication link communicatively coupled to the processor, the
4 communication link to communicatively couple to a chassis management module
5 ("CMM") of a blade server; and
6 a firmware unit communicatively coupled to the processor and having stored
7 therein a virtual management controller ("VMC"), the processor to execute the VMC to
8 communicate with the CMM during a management mode of operation of the processor to
9 coordinate operation of the processing blade with the CMM.

1 20. The processing blade of claim 19 wherein the management mode of operation
2 of the processor is transparent to a pre-boot runtime of the processor and to an operating
3 system runtime of the processor.

1 21. The processing blade of claim 20 wherein the VMC is to perform at least one
2 of coordinating with the CMM for access to shared resources of the blade server,
3 reporting system errors to the CMM, and coordinating fault resilient booting with the
4 CMM.

1 22. The processing blade of claim 21 wherein the shared resources include at
2 least one of a floppy drive, a compact disc read only memory ("CD-ROM") drive, a
3 DVD-ROM drive, a serial port, a parallel port, a universal serial bus port, a monitor, a
4 keyboard, and a mouse.

1 23. The processing blade of claim 21 wherein the VMC to be invoked by a
2 software entity executing on the processing blade, the software entity to invoke the VMC
3 to request access to at least one of the shared resources of the blade server.

1 24. The processing blade of claim 20 wherein the management mode of operation
2 comprises one of a system management mode ("SMM") and a platform management
3 mode ("PMM").

1 25. A blade server, comprising:
2 a chassis having a chassis management module (“CMM”); and
3 a plurality of processing blades supported within the chassis, each of the plurality
4 of processing blades communicatively coupled to the CMM, each of the plurality of
5 processing blades comprising:
6 a processor to execute instructions;
7 a communication link communicatively coupled to the processor, the
8 communication link communicatively coupled to the CMM; and
9 a flash memory unit communicatively coupled to the processor and having
10 stored therein a virtual management controller (“VMC”), the processor to execute
11 the VMC to communicate with the CMM during a management mode of
12 operation of the processor to coordinate operation of each of the plurality of
13 processing blades with the CMM.

1 26. The blade server of claim 25 wherein the management mode of operation of
2 the processor is transparent to a pre-boot runtime of the processor and to an operating
3 system runtime of the processor.

1 27. The blade server of claim 26 wherein the VMC of each of the plurality of
2 processing blades to perform at least one of coordinating with the CMM for access to
3 shared resources of the blade server, reporting system errors to the CMM, and
4 coordinating fault resilient booting with the CMM.

1 28. The blade server of claim 27 wherein the processor of each of the plurality of
2 processing blades activates the management mode of operation to execute the VMC in
3 response to a software entity, the software entity to trigger activation of the management
4 mode of operation to request access to at least one of the shared resources.

1 29. The blade server of claim 28 wherein the shared resources include at least one
2 of a floppy drive, a compact disc read only memory ("CD-ROM") drive, a DVD-ROM
3 drive, a serial port, a parallel port, a universal serial bus port, a monitor, a keyboard, and
4 a mouse.

1 30. The blade server of claim 25 wherein the management mode of operation
2 comprises one of a system management mode ("SMM") and a platform management
3 mode ("PMM").